AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (previously presented): A gallium-nitride semiconductor substrate having a mirrorlike, planar surface directly onto which a light-emitting-device-forming film has been epitaxially grown, the gallium-nitride substrate therein contaminated at the interface between the mirrorlike, planar surface and the device-forming film grown thereon by one or more elements selected from Si, Cr, Mn, Fe, Ni, Cu, Zn and Al at a density level of from 15×10^{10} to 10×10^{11} atoms/cm^2.

Claim 2 (previously presented): A gallium-nitride semiconductor substrate having a mirrorlike, planar surface directly onto which a light-emitting-device-forming film has been epitaxially grown, the gallium-nitride substrate therein contaminated at the interface between the mirrorlike, planar surface and the device-forming film grown thereon by one or more elements selected from Si, Cr, Mn, Fe, Ni, Cu, Zn and Al at a density level of from 15×10^{10} to 5×10^{11} atoms/cm^2.

Claim 3 (withdrawn): A method of processing a gallium-nitride semiconductor substrate, the method comprising:

providing a gallium-nitride semiconductor substrate having a complex front side in which the Ga and N faces are exposed in alternation;

polishing the substrate front side with an abrasive embedded into a metallic platen, thereby transforming the substrate episurface into a process-transformed layer;

reactive-ion etching the substrate front side using a halogen plasma to remove the process-transformed layer; and

wet etching the reactive-ion etched substrate, by means of an etchant that is one of HF + H_2O_2, HCl + H_2O_2, H_2SO_4 + H_2O_2, HNO_3 + H_2O_2, HF + O_3, HCl + O_3, H_2SO_4 + O_3, HNO_3, or HNO_3 + O_3, and that has an oxidation-reduction potential of more than 1.2 V, in a room-temperature aqueous solution of pH = 2 to 3, thereby to remove contaminant metal produced by said reactive-ion etching.

Claim 4 (canceled)

Claim 5 (withdrawn): A method of processing a gallium-nitride semiconductor substrate as set forth in claim 3, characterized in that a wash for taking off organic matter by means of an organic solvent, and a wash by means of an alkaline solution in order to take off nonmetal contaminants are carried out either before or after the wet etching.

Claims 6-10 (canceled)

Claim 11 (previously presented): A gallium-nitride semiconductor substrate as set forth in claim 1, wherein the substrate surface on which the device-forming epitaxial film has been grown is a complex of faces in which Ga is exposed, and faces in which N is exposed.

Claim 12 (previously presented): A gallium-nitride semiconductor substrate as set forth in claim 2, wherein the substrate surface on which the device-forming epitaxial film has been grown is a complex of faces in which Ga is exposed, and faces in which N is exposed.

Claims 13 and 14 (canceled)

Claim 15 (new): A gallium-nitride semiconductor substrate as set forth in claim 1, having a photoluminescence in terms of said contaminant-density level that, when the ratio of the photoluminescence at the maximum contaminant-density level of 10×10^{11} atoms/cm^2 to said maximum contaminant-density level is taken as a standard at unity, is from 1 to about 13 times that standard.

Claim 16 (new): A gallium-nitride semiconductor substrate as set forth in claim 2, having a photoluminescence in terms of said contaminant-density level that, when the ratio of the photoluminescence at the maximum contaminant-density level of 5×10^{11} atoms/cm^2 to said maximum contaminant-density level is taken as a standard at unity, is from 1 to about 4.4 times that standard.